REMARKS

In response to the Office Action mailed July 12, 2005, the Applicants respectfully request reconsideration. To further the prosecution of this Application, the Applicants submit the following remarks and have amended claims. The claims as now presented are believed to be in allowable condition.

Claims 1-22 are pending in the application. Claims 1, 8, and 16 are independent claims and the remaining claims are dependent claims. Claims 13 and 14 were indicated as allowable. By this amendment, the limitations of claim 13 has been added to claim 1. New claims 16-22, which duplicate of claims 1-7 as originally filed, have been added. The amendments do not add new matter to the application and the Applicants have not raised any new issues that would require further searching and consideration.

Allowable Subject Matter

The Examiner has indicated that claims 13 and 14 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph, set forth in the Office Action and to include all of the limitations of the base claim and any intervening claims. The Examiner is thanked for his allowance of claims 13 and 14. However, there is no indication in the Office Action regarding rejection of claims 13 and 14 under 35 U.S.C. §112, second paragraph. As such, the Applicants believe the claims to be allowable without further amendments.

Drawing Objections

The drawings have been objected to because of discrepancies between Figure 1 and the specification. As filed, the specification recites (on page 20, lines 9-13) a base station having a reference number "100" and rake modems having a reference number "112" and Figure 1 illustrates a rake modem having the reference number "100" and a base station having the reference number "112." The Applicants have corrected Figure 1 to switch the reference numbers of the base station and the rake modem. No new matter is added to the application by this revision to Figure 1. Additionally, a Notice to the Official Draftsperson is enclosed with this Response.

Claim Rejections Under 35 U.S.C. §102(e):

Claims 1, 4, and 7 were rejected under 35 U.S.C. §102(a) as being anticipated by U.S. Patent No. 6,449,266 to Hottinen et al. As indicated above, claim 1 has been amended to include the subject matter of claim 13 and, therefore, is in condition for allowance. Accordingly, claims 2-7, which depend either directly or indirectly on claim 1, are also in a condition for allowance.

Claim Rejections Under 35 U.S.C. §103(a):

Claims 2, 3, 5, 6, 8-12, and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,449,266 to Hottinen et al. in view of U.S. Patent No. 5,917,829 to Hertz et al.

Claims 2, 3, 5, and 6 depend from independent claim 1. Because these claims depend upon an allowable independent claim, these claims should also be allowed to issue.

Regarding the rejection of claims 8-12 and 15, the Examiner, however, has not established a *prima facie* case of obviousness with respect to the claims because neither Hottinen nor Hertz, alone or in combination, teach or suggest all of the claim limitations in the claims. The Applicants respectfully traverse these rejections and requests reconsideration.

The Applicant's independent claim 8 relates to a communications device for detecting user transmitted symbols encoded in spread spectrum waveforms (hereinafter "user waveforms") which includes a first processing element coupled with a multi-port data switch, the first element generates a matrix (hereinafter "gamma matrix") representing a correlation between a code associated with one user and those associated with one or more other users. The communications device also includes a set of one or more second processing elements coupled with the multi-port data switch, each of the processing elements within the set generates a portion of a matrix (hereinafter "R-matrix") representing cross-correlations among user waveforms, and a third processing element coupled with the multi-port data switch, the further processing element generates symbol estimates.

Regarding the rejection of independent claim 8, the Examiner indicates that Hottinen discloses a first processing element which generates a matrix (hereinafter "gamma matrix") representing a correlation between a code associated with one user and those associated with one or more other users, a second processing element which generates a matrix (hereinafter "R-matrix") representing cross-correlations among user waveforms, and a third processing element which generates symbol estimates. Hottinen, however, does not teach or disclose these elements as claimed by the Applicants.

Hottinen relates, generally, to a data transmission method and system utilizing Code Division Multiple Access (CDMA). In Hottinen, a receiver in the data transmission system includes an antenna 50 coupled to a number of groups 61a to 61c of matched filters, such as correlators 80-83. Hottinen recites that the matched filters can synchronize with a signal received by the antenna and disassemble a signal component transmitted with a desired spreading code (column 10, lines 42-45) where each filter group 61a to 61c receives a signal transmitted by one user. The matched filters provide output signals 64a-64c "which are ... the despread signals of each user" (column 10, lines 65-66) to an interference cancellation means 62 where estimates of the signal amplitudes of the users, delays of the signal components, and a matrix of the normalized cross-correlations of transmitted symbols are calculated. This data is supplied to an interference cancellation block where estimates for the received symbol for each user are calculated. The estimates 79a to 79c are provided to a number of signal post-processing means 63a to 63c "which may comprise for example deinterleaving means, channel decoding, multiplexing means, some other receiver stage or means for combining the signal of one user, consisting of several parallel transmissions" (column 11, lines 8-11).

With respect to the rejection of claim 8, the Examiner recites Hottinen as disclosing "a first processing element (Fig. 7, elements 80-83) which generates a matrix (hereinafter "gamma matrix") representing a correlation between a code associated with one user and those associated with one or more other users." As indicated above, however, Hottinen discloses the **output of the matched filters or correlators 80-83** as being the "**despread signals of each user**." There is no teaching or suggestion in Hottinen regarding the output of the matched filters as being "a

matrix ... representing *a correlation between a code associated with one user and those associated with one or more other users*" as claimed by the Applicants.

Furthermore, the Examiner recites Hottinen as disclosing "a set of one or more second processing elements (Fig.8, element 62) coupled with the first processing element, the set of processing elements generating a matrix (hereinafter "R-matrix") representing cross-correlations among user waveforms (Fig. 8, element 73)." As indicated above, Hottinen discloses the interference cancellation means 62 as calculating estimates of the signal amplitudes of the users, delays of the signal components, and a **matrix of the normalized cross-correlations of transmitted symbols**. There is no teaching or suggestion in Hottinen regarding the interference cancellation means as calculating "a matrix ... representing **cross-correlations among user waveforms**" as claimed by the Applicants.

Also, the Examiner recites Hottinen as disclosing "a third processing element coupled with the set of processing elements, the further processing element generates symbol estimates (Fig. 6, elements 63a-63c)." As indicated above, Hottinen discloses a signal post-processing means 63a to 63c "which may comprise for example deinterleaving means, channel decoding, multiplexing means, some other receiver stage or means for combining the signal of one user, consisting of several parallel transmissions." Hottinen does not teach or disclose the signal post-processing means as producing any specific type of output signal and, as such, does not teach or disclose generating "**symbol estimates**" as claimed by the Applicants.

Furthermore, Hertz does not cure the shortcomings of Hottinen. Hertz relates to a detector for detecting messages from a plurality of asynchronous direct-sequence CDMA signals by decorrelation. Hertz does not teach or suggest a first processing element generating a gamma matrix, a second processing element generating an R-matrix, or a third processing element generating symbol estimates such as claimed by the Applicants. Hence, the combined teachings of Hottinen and Hertz fail to teach the subject matter of claim 8. Accordingly, claim 8 and claims 9-12 and 15, which depend upon claim 8, are believed to be in a condition for allowance.

Added Claims 16-22:

As indicated above, claims 16-22, a duplicate of claims 1-7 as originally filed, have been added to the application. The Applicant's independent claim 16 relates to a communications device for detecting user transmitted symbols encoded in spread spectrum waveforms (hereinafter "user waveforms") which includes a first processing element which generates a matrix (hereinafter "gamma matrix") representing a correlation between a code associated with one user and those associated with one or more other users. The communications device also includes a set of one or more second processing elements coupled with the first processing element, the set of processing elements generating a matrix (hereinafter "R-matrix") representing cross-correlations among user waveforms and a third processing element coupled with the set of processing elements, the further processing element generates symbol estimates.

As indicated above, Hottinen does not teach or disclose any of a first processing element which generates a matrix (hereinafter "gamma matrix") representing a correlation between a code associated with one user and those associated with one or more other users, a second processing element which generates a matrix (hereinafter "R-matrix") representing cross-correlations among user waveforms, or a third processing element which generates symbol estimates, as claimed by the Applicants. As such, because Hottinen does not teach all of the claim limitations in independent claim 16, the reference does not anticipate the claim. Independent claim 16 is therefore patentable over Hottinen for at least the above reasons and should be allowed to issue. Further, claims 17-22, which depend from claim 16, are also allowable for the same, and other, reasons.
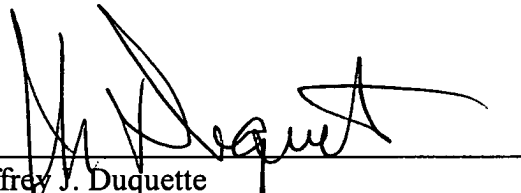
Conclusion

In view of the above, the Applicants respectfully submit that the claimed invention is patentable. The Applicants therefore kindly request consideration of all claims in light of the above remarks and allowance thereof.

The Applicants hereby petition for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 141449.

The Examiner is also kindly requested to contact the undersigned if such would expedite examination and allowance of the application.

Respectfully submitted,

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Date: <u>October 12, 2005</u>

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